

We claim:

- Sub 17
1. A cervical vertebral bone stabilizing system and method, for the purpose of fixing one vertebra with respect to one or more other vertebra or with respect to another implant or graft material within the human spine containing;
    - (a) a fixation screw, pin, or other bone grabbing device with a locking taper extending into the underlying bone for a distance 1 mm or greater, and
    - (b) two or more bone screws configured to engage a rigidizing plate, and to engage previously machined holes within said vertebra, for the purpose of retaining said plate to said vertebrae, and
    - (c) said screws with a shank portion and a head portion configured and sized to be affixed by an interference fit within said plate hole and also affixed within a portion of said machined holes into the vertebral bone, and
    - (d) said screws extending through the said plate from the anterior surface through the said posterior surface holes engaging said machined bone screw holes for fastening the plate to at least two vertebral bodies of a human cervical spine along the anterior side of the spine.
  2. The cervical stabilizing system of claim 1, wherein the said bone screws have a threaded portion to engage threads in the machined holes within the bone.
  3. The cervical stabilizing system of claim 1, wherein the said interference fit of said bone screws contain one or more locking tapers which extend into the underlying bone to prevent screw backout.
  4. The cervical stabilizing system of claim 1, wherein the plate holes and the said vertebral holes are tapered to engage mating tapers of the bone screw of claim 3.
  5. The cervical stabilizing system of claim 1, wherein the interference fit portion of the said screw shank or head extends 1 mm or more into the said plate hole.
  6. The cervical stabilizing system of claim 1, wherein said screws are fixed to said plate and vertebral bone holes with adhesive, cement, or other bonding materials.
  7. The cervical stabilizing system of claim 1, wherein a hole is produced in said vertebra by a drilling tool.

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8. The said hole of claim 1, whereas said drilling tool is aligned and guided by a guide bushing within the said plate hole.
  9. The said hole of claim 1, whereas a thread is produced with a thread forming tool.
  10. The said thread forming tool of claim 9, whereas the tool is aligned and guided by a bushing within said plate.
  11. The cervical stabilizing system of claim 1, wherein the said screw head has driving feature to allow for tightening.
  12. The cervical stabilizing system of claim 1, wherein the said screw has self tapping screw threads.
  13. The cervical stabilizing system of claim 1, wherein the screws and or stabilizing system are composed of metal, alloy, polymeric, plastic, biodegradable, bio-absorbable, human tissue, allograft, and autograft, composite, or combination of materials.
  14. A bone stabilizing system and method, for the purpose of fixing one bone with respect to one or more other bones or with respect to another implant or graft material within the human skeleton containing;
    - (a) a fixation screw, pin, or other bone grabbing device with a locking taper extending into the underlying bone for a distance 1mm or greater, and
    - (b) two or more bone screws configured to engage a fixating plate or device, and to engage previously machined holes within said bone, for the purpose of retaining fixation to said bones, and
    - (c) said screws with a shank portion and a head portion configured and sized to be affixed by an interference fit within said plate hole and also affixed within a portion of said machined holes in the bone, and
    - (d) said screws extending through a fixation device from the exterior surface through the holes engaging said bone screw holes for fastening the fixation device to bone.
  15. The bone stabilizing system of claim 14, wherein the said bone screws have a threaded portion to engage threads in the machined holes within the bone.
  16. The stabilizing system of claim 14, wherein said interference fit of said bone screws contain one or more locking tapers which extend into the underlying bone to prevent screw backout.

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17. The fixating system of claim 14, wherein the stabilizer plate holes and the said bone holes are tapered to engage mating tapers of the screw of claim 15.
18. The stabilizing system of claim 14, wherein the interference fit portion of the said screw shank or head extends 1mm or more into the said fixator.
19. The stabilizing system of claim 14, wherein said screws are affixed to said plate, or other stabilizer, and to the bone holes with adhesive, cement, or other bonding materials.
20. The stabilizing system of claim 14, wherein a hole is produced in said bone by a drilling tool.
21. The said hole of claim 20, whereas said drilling tool is aligned and guided by a guide bushing within the said stabilizer hole.
22. The said hole of claim 20, whereas a thread is produced with a thread forming tool.
23. The said thread forming tool of claim 22, whereas the tool is aligned and guided by a bushing within said plate or stabilizer.
24. The bone stabilizing system of claim 14, wherein the said screw head has driving feature to allow for tightening.
25. The bone stabilizing system of claim 14, wherein the said screw has self tapping threads.
26. The bone stabilizing system of claim 14, wherein the screws and or stabilizing system are composed of metal, alloy, polymeric, plastic, biodegradable, bio-absorbable, human tissue, allograft, and autograft, composite or combination of materials.